IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

In re: Federal Mogul Global, Inc., *et al*	(Bankruptcy #01-10578)(RTL)
Debtors.	

THE OFFICIAL COMMITTEE OF ASBESTOS CLAIMANTS and ERIC D. GREEN, as the LEGAL REPRESENTATIVE FOR FUTURE ASBESTOS CLAIMANTS,	)	
Plaintiffs,	)	Civil Action No. 05-59 JHR
v.	)	
ASBESTOS PROPERTY DAMAGE COMMITTEE,	)	
Defendant.	)	

SUPPLEMENTAL EXPERT REPORT

OF DR. ROBIN A. CANTOR

April 26, 2005

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I. Qualifications

I am a Director in the Financial and Insurance Services practice of Navigant Consulting, Inc. ("NCI"). I lead the Liability Estimation practice, which helps companies and financial institutions better understand asbestos and other product liability exposures. I specialize in environmental and energy economics, statistics, risk management, and insurance claims analysis. Prior to joining NCI in September 2004, I was a Principal and Managing Director of the Environmental and Insurance Claims Practice of LECG, LLC. My responsibilities at LECG included conducting complex economic, statistical, and risk analysis for litigation support and expert testimony, as well as managing a staff of internal and external environmental professionals.

I was Program Director for Decision, Risk, and Management Sciences, a research program of the National Science Foundation ("NSF") and a senior researcher at Oak Ridge National Laboratory. I am a past Coordinator and grants manager for the NSF Human Dimensions of Global Change, the NSF Methods and Models for Integrated Assessment, and the NSF/EPA Decision Making and Valuation for Environmental Policy.

I have a faculty appointment in the Graduate Part-time Program in Engineering of the Johns Hopkins University. I have a B.S. in mathematics from Indiana University of Pennsylvania and a Ph.D. in economics from Duke University.

My more than 20 years of economic, teaching, and consulting expertise includes several areas of liability claims analysis, environmental and energy economics, statistical modeling, risk management, public policy, and societal decision making. A partial list of the various studies I have conducted related to asbestos and product liability issues includes asbestos claims analysis in the Congoleum insurance coverage matter, several other liability estimations for solvent corporations, statistical analysis of asbestos settlements, statistical benchmarking of jury verdicts in various injury categories including asbestos injuries, analysis of premises and product claims, regression analysis of asbestos jury verdicts, and evaluation of risk management perspectives in the federal government.

I was the 2002 President of the Society for Risk Analysis. In 2001, I was appointed as a member of the Research Strategies Advisory Committee of the U.S. Environmental Protection Agency's Science Advisory Board. I am a past President of the board of directors for MATRIX, The Business Center for Women and Minorities. I am a member of the Society for Risk Analysis, the American Economic Association, and the Women's Council on Energy and the Environment. I serve or have served on science review and advisory boards for the Johns Hopkins University Graduate Part-Time Program in Environmental Engineering and Science, the National Center for Environmental Decision-making Research, the Carnegie Council on Ethics and International Affairs, the National Oceanic and Atmospheric Administration, the National Academy of Public Administration, and the Consortium for International Earth Science Information Network. I currently serve on the editorial board of the Journal of Risk Analysis and I am associate editor for the Journal of Risk Research.

I have submitted analysis, testimony and affidavits in federal arbitration, regulatory and Congressional proceedings, and federal court. My publications include refereed journal articles, book chapters, expert reports, reports for federal sponsors, and a co-authored book on economic exchange under alternative institutional and resource conditions. My curriculum vita is attached as Attachment A to this report, which also lists my testimony in the last four years. My current billing rate for this engagement is $400/hour for analysis and testimony. Other NCI staff members have also worked with me on this matter and they have been billed at their normal and customary rates ranging from $150 to $400.

II. Assignment

I have been retained by Weil Gotshal & Manges LLP ("Counsel") on behalf of the Official Committee of the Asbestos Property Damage Claimants ("Committee") to use my professional judgment and generally accepted estimation methods to investigate the aggregate indemnity liability for pending and future bodily injury claims related to asbestos containing products sold and produced by T&N, Limited ("T&N"). I have been instructed by Counsel that my analysis is to be bounded by the scope of the claims as employed by the Disclosure Statement to determine a payment ratio for the class of creditors to which the Committee belongs. As a result, I have also been asked to consider the reliability of the analytical foundations of the ratio calculations as reported in the Disclosure Statement.

A list of materials considered for my analysis is attached hereto as Attachment B. I also have relied on my training and experience as an economist and claims analyst. I have also directed NCI staff to conduct certain analyses to support my findings and conclusions. My opinions are based on my understanding of the information available to me as of the date of this report. I reserve the right to supplement or change my opinion if new information should become available.

III. Summary of Findings and Opinions

My analysis indicates that the total discounted net present value of indemnity costs for pending claims and future claims filed through 2054 against T&N for asbestos-related cancers and nonmalignant injuries is approximately $2.5 billion in 2001 dollars. Based upon my analysis of the costs of the pending and future claims, I find that the indemnity cost reported in the Disclosure Statement for T&N liability is grossly overstated.

I performed a number of sensitivity analyses to investigate the robustness of my calculations. I found that altering the assumption about future mesothelioma settlement values, expanding the scope of the exposed labor populations, or using an alternative basis for the mesothelioma incidence estimates for future claims did not substantially change my base case results.

I also conducted a sensitivity analysis to investigate how the base case results are affected by my approach to reference compensated claims by the death year of the claimants rather

than estimate future claims by the historical pattern of filings. I note in this regard that it is undisputed that established annual references for the count of potential claimants with asbestos-related malignant diseases (the incidence data) used in my analysis and also by Dr. Peterson,[1] are in terms of deaths per year. My base case approach uses the available evidence from historical T&N claims to reference compensated claims to their actual or imputed death year. Thus, my approach compares the count of deaths for potential claimants (the incidence data) to the count of actual T&N claimants observed or estimated to have died from a specific asbestos-related malignant disease in a particular year. Ignoring this comparison implies that deaths (incidence data) would be compared to living claimants for a substantial portion of the relevant T&N claims. In my sensitivity analysis I use, but do not endorse, the assumption to use file year as a proxy for missing death year. I find that even with this extreme change to my approach, my liability estimate is $2.8 billion or about 25% of the indemnity cost reported in the Disclosure Statement.

Finally, my analysis revealed that there were substantial changes in the historical treatment of claim types and values, especially for mesothelioma and asbestosis claims, in 2001. For example, the number of annualized compensated mesothelioma claims fell 67% from 2000 to 2001, while settlement values increased by 25% over those in year 2000. In contrast, the count of annualized compensated asbestosis claims in 2001 was about 25% larger than the count in 2000, and the average settlement value in 2001 was about half of the value in 2000. Dismissal rates for claims filed in 2001 were very low, especially for non-malignant claims. Overall, dismissal rates for claims filed and resolved in 2001 were less than 1%. These changes might be due to the closing of the Center for Claims Resolution ("CCR") or due to the anticipated Federal-Mogul filing for bankruptcy. Regardless of the cause, the weight given to these observed changes is a key element in forming inferences about the future claim counts and values.

IV. Background and Review of the Disclosure Statement

A. Background

1. The Role of Asbestos Liability in the Reorganization Plan

It is my understanding that Federal-Mogul and 156 related entities (collectively "the Debtors") filed voluntary petitions for relief under Chapter 11 of the Bankruptcy Code in the U.S. Bankruptcy Court for the District of Delaware ("the Court") on October 1, 2001 ("bankruptcy date") for the purpose of resolving the asbestos liabilities of Federal-Mogul and certain of its subsidiaries.[2] Among these subsidiaries and a significant source of the

[1] Expert Report of Mark A. Peterson, November 29, 2004, "Turner & Newell, Inc. Projected Liabilities for Asbestos Personal Injury Claims." ("Peterson November 2004 Report")

[2] In re: Federal-Mogul Global Inc., T&N Limited, *et al.*, Disclosure Statement Describing Third Amended Joint Plan of Reorganization (Nos. 01-10578) (Bankr. Del.) (2004) ("Disclosure Statement") at 1.

Debtors' asbestos personal injury liabilities, is T&N, a wholly-owned U.K. subsidiary of Federal-Mogul that was acquired in March 1998.[3]

I understand that on June 4, 2004, the Debtors, the Unsecured Creditors Committee, the Asbestos Claimants Committee, the Future Claimants Representative, the JP Morgan Chase Bank as Agent for the holders of Bank Claims, and the Equity Committee, collectively referred to as the "Plan Proponents," filed a Disclosure Statement in connection with the solicitation of acceptances and rejections with regard to the Third Amended Joint Plan of Reorganization ("the Plan").[4] Under the Plan as I understand it, all claims and equity interests that existed on the petition date (other than Administration Claims, Administrative Claims, and Priority Tax Claims) are divided into a number of classes, each of which is accorded different treatment.[5]

It is my further understanding that Asbestos Property Damage Claims are not accorded a class of their own but are part of Class H, Unsecured Claims. Specifically, according to the Disclosure Statement, this class includes "Asbestos Property Damage Claims against any U.S. Debtors to the extent that the Allowed Amounts of such Claims are not otherwise satisfied by any applicable insurance coverage, and to the extent that such claims are not bonded claims."[6]

My understanding is that the amount received by Class H claimants under the Plan depends upon the particular Debtor against which they hold claims. Holders of Unsecured Claims against T&N, will, if their claims are allowed, receive the allowed amount multiplied by a T&N Distribution Ratio. Two possible T&N Distribution Ratios are set forth; both rely as an important part of their calculation on the asbestos personal injury claims and demands against T&N based on the Asbestos Personal Injury Trust Distribution Procedures, as described below.

2. Assumed Scope of T&N Asbestos Liability

I have been asked by Counsel to confine my analysis to T&N's asbestos personal injury liabilities because they are the liabilities that are central to the calculations affecting the Committee, and the ones that have been estimated by Dr. Peterson.[7] Although Dr. Peterson's estimate includes U.K. claims, they appear to be very small in number relative to the U.S. claims. I note that Dr. Peterson has estimated that the U.K. liability is 229 million in discounted 2001 pounds,[8] which is about 3% of the indemnity cost reported

[3] Disclosure Statement at 31.
[4] Disclosure Statement at 1.
[5] Disclosure Statement at 92-93.
[6] Disclosure Statement at 106.
[7] Memorandum from Mark Peterson to Elihu Inselbuch and Julie Davis dated February 19, 2004 ("Feb. 2004 Peterson Memorandum")
[8] Peterson November 2004 Report at 53.

in the Disclosure Statement.[9] Because the U.K. claims reflect a different set of historical national and industrial conditions from those in the U.S., an analysis of the U.K. claims would involve a detailed cross-cultural comparison of risks with little independently researched or published information on U.K. disease incidence to use as a foundation.[10] Given the apparently small value of the U.K. claims, developing a separate analysis for these claims was not warranted or practical. Therefore, my analysis extends only to U.S. claims against T&N.

My analysis is based on my understanding of the asbestos products produced and sold by T&N and its subsidiaries, as described in the Disclosure Statement. It is my understanding that T&N's asbestos personal injury liability arises primarily from three historical areas of business: its manufacture and sale of Sprayed Limpet Asbestos ("Limpet"); its ownership from 1934-1962 of Keasbey & Mattison Co. ("Keasbey") and, to a lesser extent, its ownership in other years of two other Canadian subsidiaries; and its brokerage of raw asbestos fiber.[11]

Limpet was a mixture of asbestos and cement sprayed onto surfaces for fireproofing, insulation, and other purposes. T&N began to license the sale and application of Limpet internationally in 1934. Between 1934 and 1973 the head U.S. licensees were Keasbey (1934-1962), Armstrong Contracting and Supply Corp. (now known as AC&S) (1962-1967), and Atlas Asbestos Corp. (1967-1973). According to the Disclosure Statement, it was not a widely marketed or used product in the U.S., with sales extremely low until 1940, small in the 1940s to mid-1950s, and not exceeding $100,000 annually until 1959. From approximately 1959-1965, half of all Limpet sold in the U.S. went to three high-profile building projects.[12]

Keasbey was acquired by T&N in 1934 and was wholly-owned by 1938. Besides the sale of Limpet, it manufactured and sold a wide variety of asbestos-containing products, including textiles, insulation, and asbestos cement pipe throughout the U.S. between 1934 and 1962. Keasbey also owned the Bell chrysotile asbestos mine in Quebec until 1936, when T&N divested the Bell assets and placed them in a separate Canadian subsidiary, Bell Asbestos Mines, Ltd., which it owned until 1980. In 1962 T&N sold Keasbey's assets to unrelated companies and discontinued Keasbey's businesses.[13]

Beginning in 1926, T&N owned asbestos mines or mining interests in South Africa, Rhodesia (now Zimbabwe), Swaziland, and, after its acquisition of Bell through Keasbey, Canada. A U.K. unit company of T&N eventually known as TAF International, Ltd.

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[9] The Disclosure Statement indicates that estimate of asbestos liabilities is $11 billion. (Disclosure Statement at 109.) Using the average daily 2001 exchange rate for dollars (1.44), I calculate that the U.K. liability is 330/11000 or 3% of the value in the Disclosure Statement.

[10] See, for example "UK Asbestos – The Definitive Guide," http://www.actuaries.org.uk/filed/pdf/proceedings/giro2004/Lowe.pdf

[11] Disclosure Statement at 31.

[12] Disclosure Statement at 32-33.

[13] Disclosure Statement at 33.

("TAF") brokered raw fiber from the African mines to various U.S. manufacturing companies between 1932 and 1976, with most sold before 1965; however, the majority of fiber brokered by TAF went to T&N's other U.K. unit companies. According to the Disclosure Statement, the amount of African fiber brokered to U.S. companies (principally Keasbey, but also to other companies) was "miniscule" compared to the total usage of raw fiber in the U.S. during the years in question: 450,000 tons in total over 45 years (averaging 10,000 tons per year) compared to the total usage of nearly 1 million tons a year from the 1950s to the early 1970s.[14]

B. Disclosure Statement and the Reliance on Dr. Peterson's Prior Analysis of Liability

As noted earlier, the Plan places the claims of the Committee against the Debtors in the class of Unsecured Claims. The Plan states that holders of allowed Unsecured Claims against T&N will receive a percentage of their allowed amount based on one of two "T&N Distribution Ratios," both of whose denominators rely wholly or in part on the asbestos personal injury claims and demands against T&N based on the Asbestos Personal Injury Trust Distribution Procedures.[15] This amount is stated to have been estimated by Dr. Peterson at approximately $11.0 billion.[16] I note in this regard that Dr. Peterson prepared an analysis of T&N liabilities for pending and future U.K. and U.S. claims in February 2004 which estimated the U.S. liability in millions of 2002 dollars at $10,497.[17]

I note that this estimate differs considerably from an estimate apparently provided by National Economic Research Associates ("NERA") in early 2001[18] and reported in Federal-Mogul's Form 10-K for the year ending December 31, 2000 (the last 10-K before the bankruptcy filing).[19] NERA estimated the liabilities of T&N, Gasket Holdings Inc.

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[14] Disclosure Statement at 34.

[15] "T&N Distribution Ratio Number 1" has as a numerator the estimated value of 79 percent of the Reorganized Federal-Mogul Class B Common Stock to be allocated to the §524(g) trust, i.e., $790 million. This represents the relative size of the historical asbestos liabilities of the Debtors (T&N, Gasket Holdings, and Ferodo America) whose asbestos liabilities are not likely to be fully insured. The denominator is the $11.0 billion value of asbestos personal injury liabilities predicted by Dr. Peterson. This yields a percentage recovery of 7.2%. "T&N Distribution Ratio Number 2" has as a numerator an estimate of T&N's value if certain Consensual Marketing Procedures outlined in the Plan are performed, and is stated to be in the range of approximately $500 to $800 million. The denominator equals the $11.0 billion estimated by Dr. Peterson, plus certain other claims, for a total of approximately $13.3 billion. This yields a percentage recovery of 3.8% to 6.0%. Disclosure Statement at 109.

[16] Presumably this was taken from the memorandum from Mark Peterson to Elihu Inselbuch and Julie Davis dated March 2, 2004, which provides an estimate for T&N's U.S. liability of $10,504 in millions of 2002 dollars.

[17] Feb. 2004 Peterson Memorandum at 19.

[18] Disclosure Statement at 110.

[19] Federal-Mogul Corporation, Annual Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934 (Form 10-K) for the fiscal year ended December 31, 2000 ("the 2000 10-K").

(Flexitallic) and Ferodo America, Inc. to be $1.6 billion, and those of all the Federal-Mogul entities to be $1.8 billion.[20]

To explain this substantial disparity, the Disclosure Statement cites "critical differences" between the data and assumptions relied upon by Dr. Peterson and those relied upon by NERA. Some of these factors would reasonably lead to a higher liability estimate, in particular the fact that NERA was only estimating claims likely to be asserted and paid through 2012, while Dr. Peterson's forecast covers all expected future claims. In addition, Dr. Peterson had more complete data on settlement values: NERA relied on 1999 actual values and 2000 budgeted values, while Dr. Peterson had actual settlement data for 2000 and 2001.

However, Dr. Peterson's higher estimate is also based in large part on several assumptions that were not made by NERA and that may or may not prove to be true. These assumptions include a dramatic increase in settlement values after T&N was no longer a member of the CCR, a higher increase in settlement values for T&N than for other CCR members, that plaintiffs would have looked to a solvent T&N for an increasingly higher share of settlements as other defendants left the tort system, and an increase in the rate of claims filed against T&N in the future. I also note in this regard that the scheduled values proposed for T&N U.S. claims in the Plan are substantially higher than the historic values calculated by Dr. Peterson in his February 2004 memorandum, particularly for malignant diseases.[21] This may also be a source of substantial difference among Dr. Peterson's 2002 estimate,[22] NERA's estimate, and Dr. Peterson's 2004 estimate.

V. Bases of the NCI Analysis of Liability

A. Overview

My analysis values pending claims and estimates the number and total value of future claims filed through 2054 for asbestos-related cancers and nonmalignant injuries in those who could have been exposed from 1935 to 2000 to asbestos contained in T&N products.

In general, closed claim information was analyzed to determine disease distributions over time and the historical acceptance rates. Closed claims are further used to estimate the average settlement value for claims of each disease over various periods. Closed and pending claims are used to estimate compensability rates:

[compensated closed claims + compensable pending claims] / incidence = compensability rate

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[20] Disclosure Statement at 110; *see also* the 2000 10-K at 21.
[21] Feb. 2004 Peterson Memorandum at 15; Disclosure Statement at 159.
[22] Memorandum from Elihu Inselbuch, Nathan D. Finch, and Rita C. Tobin dated October 25, 2002. ("Oct. 2002 Inselbuch Memorandum").

Compensability rates are used to estimate future claims in each asbestos-related malignant disease. Closed claims are also used to estimate the relationship between non-malignant and malignant claims.

To project the incidence of future mesothelioma claims, my analysis builds on the approach and data published in 1982 by William J. Nicholson, George Perkel and Irving Selikoff (hereafter referred to as "Nicholson"),[23] with modifications made as appropriate to reflect more recent research. The population of those potentially exposed to asbestos-containing products manufactured by T&N from 1935 to 2003 was estimated based on product information provided in the Disclosure Statement for mesothelioma claims.[24] A dose-response model approved by the Occupational Health and Safety Administration ("OSHA")[25] was then applied to the exposed population data to estimate the future annual incidence of mesothelioma deaths. Incidence of other asbestos-related malignant diseases was based on projections by KPMG, as presented by Dr. Peterson in other bankruptcies.[26] The number of asbestosis and pleural claims were based on past ratios of such compensated claims to compensated malignant claims.

Dismissal rates based on T&N's historical closed claims experience were applied to pending claims and compensability rates based upon historical closed and pending claims experience were applied to estimate the projected future claims to determine the number of claims to be compensated annually. As noted, settlement values were derived by taking into consideration the historical values paid by T&N. Liability for T&N was determined by applying these settlement values to the estimate of pending and future compensable tort claims expected to be filed through 2054.

B. Historical Claim Filings

1. Data Received

My analysis is based upon data received by messenger from Adam Strochak of Weil, Gotshal & Manges LLP on October 26, 2004. It is my understanding that these datasets represented all closed and open claims for Federal-Mogul and its subsidiaries. At my direction, NCI staff converted the various datasets to a single dataset that contained only T&N claims in the U.S. Also at my direction, NCI staff removed claims received after the

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[23] William J. Nicholson, George Perkel and Irving Selikoff, "Occupational Exposure to Asbestos: Population at Risk and Projected Mortality -- 1980-2030," American Journal of Industrial Medicine 3:259-311, 1982.
[24] Disclosure Statement at 31-34.
[25] Occupational Exposure to Asbestos, 48 Fed. Reg. 51,086 (Nov. 4, 1983) ("1983 OSHA Regulations").
[26] See, for example, Dr. Peterson's analysis in the Owens Corning bankruptcy (Owens Corning and Fibreboard Projected Liabilities for Asbestos Personal Injury Claims As of October 2000, In re: Owens Corning, et al. (No. 00-03837) (Bankr. Del.) (2004)) and in the Armstrong bankruptcy (Armstrong World Industries, Inc. Projected Liabilities for Asbestos Personal Injury Claims As of December 2000, In re: Armstrong World Industries, Inc., et al. (No. 00-4471) (Bankr. Del.) (2003)), where the KPMG data is presented as an alternative epidemiological model for sensitivity analysis.

October 1, 2001 bankruptcy date and duplicate claims,[27] which resulted in a dataset of 383,790 claims for analysis ("T&N Claims Database").

Exhibit 1 is a comparison between the data received by NCI and the apparent data record counts reported by Dr. Peterson in the Feb. 2004 Peterson Memorandum. There is general agreement on the total number of records. There is less correspondence on the number of duplicate records, but because the identification of such record depends on the decision criteria used, the observed difference is not remarkable.

Exhibit 1: Claims Data Comparisons

	NCI Analysis	LAS Analysis
Total Records	396,649	396,649
Observations Filed After Bankruptcy	23	N.A.
Duplicate Claims	12,836	15,335
Observations Analyzed	383,790	381,314
Open Claims[1]	138,102	134,235
Closed Claims[1]	245,688	247,079

Sources: NCI T&N Claims Database and Peterson November 2004 Report.
General Note: On November 25, 2004, NCI received an additional 4,498 Federal-Mogul claims in a separate file. The 4,062 T&N claims included in this additional dataset were not included in our analyses.
Specific Note: 1) Open Claims include Settled But Not Documented and Settled But Not Paid claims. In my analysis, however, open claims refer only to the 108,240 pending claims. The 29,862 Settled But Not Documented and Settled But Not Paid claims are considered closed claims in my analysis to follow (bringing the total to 275,550).

2. Disease Distribution

The T&N Claims Database contained information about the distribution of diseases across the filed claims. Two disease fields were contained on the claims record: defense disease and plaintiff disease. I understand that these categories tend to capture the final and demand

[27] Duplicates were identified through a decision making process described in Attachment C. There were some records identified by the decision making process which may have been "resettlements" or "staged" payments. Conversations between my staff and Federal-Mogul and my general understanding of the CCR record-keeping procedures could not sufficiently identify which of these records should be retained. I conducted a sensitivity analysis, however, on keeping all the positive value records and found that they increased weighted average settlement values in my calibration window by no more than 1%.

disease conditions, respectively, for the claim. Exhibit 2 shows the distribution of the T&N Claims Database across disease categories based on the recorded defense disease.

Exhibit 2: Disease Distribution of Filed Claims by Defense Disease

Status	Mesothelioma	Lung Cancer	Other Cancer	Asbestosis	Pleural	Unknown	Other Disease	Total
Closed	9,410	14,699	4,349	193,226	23,766	29,808	292	275,550
	3%	5%	2%	70%	9%	11%	0%	
Open	1,703	2,188	741	55,166	3,054	44,455	933	108,240
	2%	2%	1%	51%	3%	41%	1%	
Total	11,113	16,887	5,090	248,392	26,820	74,263	1,225	383,790
	3%	4%	1%	65%	7%	19%	0%	

Source: NCI T&N Claims Database.

3. *Missing Information*

Before proceeding with a claims analysis, there are many steps that must be conducted to prepare the data. Claim records often have missing information in data fields that are important for the broader analysis. For example, the year in which the claim was filed, the disease of the claimant, and other key claim and claimant-specific information are required for the analysis of dismissal rates, settlement values, and compensability rates, among other parameters of the liability estimation. Below I explain my procedures for obtaining or imputing data on claim records when key data fields were empty in the received T&N Claims Database.

As a central indicator of the severity of the alleged injury, disease is an important aspect of the claim information for my analysis. I therefore used an ordered process with other information available to me to fill in missing disease values on the claims. When the claim was closed and the defense disease was known on the record (i.e., not recorded as unknown, other disease, or blank), that disease value was used for the record. If the claim was closed and the defense disease was not known (i.e., missing) but the plaintiff disease was recorded, then the plaintiff disease value was used for the claim record. If the claim was open and the plaintiff disease was known, that value was recorded for the record. If a closed or open claim did not fit the above conditions, then the record was "matched" to the Manville Trust Claims Database, and the disease recorded in the Manville database was used for the record.[28] If no match to the Manville database satisfied the specified matching criteria, I

[28] The matches to the Manville Trust Database were made through a decision making process described in Attachment C.

used a "transition matrix" of disease composition to distribute the remaining claims with an unknown plaintiff disease. The transition matrix was constructed with the closed claims with a known defense disease and an unknown plaintiff disease. Exhibit 3 summarizes the ordered process and the number of claims that were filled in with each treatment.

Exhibit 3: Process to Fill in Missing Disease

	Filled In Observations	Missing Observations
Using the Defense Disease when it is a Closed Claim	249,791	146,835
Using the Plaintiff Disease when it is a Known Disease	94,495	52,340
Using the Manville Matched Disease Category	20,088	32,252
Remaining Missing	-	32,252

Sources: NCI T&N Claims Database and Manville Trust asbestos claims database, September 2004.

File year is also an important value of the claims used to make inferences about dismissal rates or to estimate ratios of nonmalignant claims to malignant claims. I used the earliest of the recorded file, service, or received years for the T&N claim when any of these three values was recorded on the record.[29] If none of these dates were recorded on the record, I used the earliest of the comparable dates when the same claim was filed against Flexitallic or Ferodo. If a T&N claim had no match with the other defendants, I used the "Plaintiff ID" number to estimate the file year as long as this produced a file year greater than 1970 and less than or equal to 2001, and greater than or equal to the claimant's diagnosis year (if known or imputed from a match with the Manville Trust Database).[30] If these conditions were not satisfied for the record, but a diagnosis date was recorded or could be imputed from the Manville data, then I used the median lag observed for records where a file year and a diagnosis year were known to "forecast" the file year. If none of the preceding conditions could be satisfied, no file year value was recorded for the claim. Exhibit 4 summarizes the file year recording process and the number of claims that were filled in with each treatment.

[29] In a small number of cases, the year 1901 was recorded for one of these values. In such cases, that value was treated as missing.

[30] For claims with recorded dates, there was high correspondence between the year extracted from the Plaintiff ID and the file year value. Approximately 92% of the year values extracted from the Plaintiff ID were within 1 year of the served year (where available), 90% of the year values extracted from the Plaintiff ID were within 1 year of the received year (where available), and 85% of the year values extracted from the Plaintiff ID were within 1 year of the file year (where available).

Exhibit 4: Process to Fill in Missing File Year

	Filled In Observations	Missing Observations
Using the Earliest T&N Filing, Receive, or Serve Year	358,485	38,141
Using the Earliest Ferodo/Flexitallic File, Receive, or Serve Year	119	38,022
Using the Plaintiff ID Receive Year	35,684	2,338
Using the Average Lag between Diagnosis and Filing Years	1,974	364
Remaining Missing	-	364

Source: NCI T&N Claims Database.

The death year of a claimant is important for determining the compensability rates for malignant diseases. "Incidence" projections, whether from the OSHA model, Nicholson, or KPMG, are all in terms of the number of deaths by year of death. Thus, calculations of propensity to sue which divide claim filings in their file year (numerator) by incidence (denominator) over some specified calibration period will include claimants who file in the calibration period and may or may not have died. The count in the numerator, to the extent that it includes living claimants, would overestimate the propensity to sue. Note that it is also true that some claimants who filed before the calibration period may have died in the period. Failure to count these claimants would underestimate the propensity to sue. My methodology addresses both problems. My approach for estimating future malignant claims is based upon compensability rates rather than propensity to sue; however, the same general principles apply to dividing the count of compensated claimants by incidence. Both numerator and denominator should be in terms of death counts to avoid biasing the estimated rate. In practice, some claim databases have little or no information on death year of the claimants. That was not the case with the T&N Claims Database, which did have death year data for most of the malignant claims used in my calculations. Where the T&N Claims Database lacked death year data, I augmented it with information in the Manville data. I also conducted a sensitivity analysis using alternative assumptions about the death and file year which is discussed in a later section.

In the first instance, death year values were extracted from the plaintiff-level data received. If no death year was recorded in the plaintiff-level data, I used the death year recorded in a match to Manville data. If no match satisfied the specific criteria, then I imputed a death year by using the median lag of two combined groups: (1) claim data when both the file year and the claimant death year were known and (2) closed claim data where the file year and the expense year were known. Exhibit 5 summarizes these decision steps and the number of claimant death years filled in with each treatment.

Exhibit 5: Process to Fill in Missing Death Year

	Filled In Observations	Missing Observations
Using the Death Date in the T&N Claims Database	38,286	380,380
Using the Manville Matched Death Date	16,246	342,094
Remaining Missing	372,094	-

Source: NCI T&N Claims Database.

Finally, the settlement amount for each claim was recorded as the net expense amount from the received database. If this amount was unavailable for a compensated claim, which I note it was for a very particular set of claims described in the next section, then the average settlement value for the same disease and expense year was recorded as the value. If no expense year was available, then the average settlement value for the same disease for 2001 was recorded as the value. Exhibit 6 summarizes the settlement value process and the number of claims filled in by each treatment.

Exhibit 6: Process to Fill in Missing Settlement Amount

	Filled In Observations	Missing Observations
Using the Net Settlement Value	2,213	27,649
Using the Average Settlement Value for the Same Disease	27,649	-
Remaining Missing	-	-

Source: NCI T&N Claims Database.

After addressing missing information, the dataset of final records ("NCI T&N Claims Database") was used in the remaining analysis to estimate disease distributions, dismissal rates, compensability rates, and settlement values.

C. Closed Claims

1. SBNP and SBND

In the T&N Claims Database there were 29,862 records in which the status is recorded as "Settled But Not Paid" ("SBNP") or "Settled But Not Documented" ("SBND"). I treated these claims as closed claims with missing settlement values, unless there was an expense

amount recorded for the claim. Thus, the only closed claims with missing settlement values were a subset of the SBNP and SBND claims, and for this subset, values were estimated as described above. I used these claims to calculate dismissal and compensability rates, but not in the estimation of average settlement amounts.

2. Disease Transition Matrices

Disease transition matrices are computed from closed claim data. These matrices are used in a number of operations for the liability estimation as explained below. In general terms, the matrices allow the redistribution of claims where the claimed disease is "unknown", a common problem for pending claims because claimants often do not allege a specific disease when first asserting a claim.

Two disease transition matrices are described in this section: one for redistribution of the unknown disease claims by file year, and one for redistribution of the unknown disease claims by death year. Below I discuss how each matrix is applied later in my calculations.

Exhibit 7 shows the distribution of closed claims across disease categories by file year. The data for 2001 is for a partial year since no claims would have closed after October 1, 2001, however, this does not alter the calculated percentages as long as the pattern for the first nine months of 2001 is the same as the pattern that would have occurred absent the bankruptcy.

This transition matrix is based upon the closed claims with a known defense disease and unknown plaintiff disease. This group of closed claims is selected to construct the matrix because it corresponds most closely to the condition of the pending claims with unknown plaintiff disease. Thus, it shows the distribution claims across diseases where the claims were filed in a particular year with an unknown plaintiff disease and were ultimately closed with a particular defense disease. Assigning all unknown disease claims to known diseases is necessary for various operations in my asbestos liability estimation. This transition matrix, for example, is used to redistribute compensable pending claims with unknown plaintiff diseases. This matrix is also used to redistribute closed claims with unknown plaintiff and defense diseases. The redistribution of the compensable pending claims is necessary to estimate the indemnity costs for pending claims. The redistribution of the closed claims is necessary to estimate the ratios of compensated nonmalignant claims to compensated malignant claims. The transition matrix in Exhibit 7 is in terms of file year because both of the foregoing operations are referenced to the file year.

Exhibit 7: Transition Matrix For Unknown Diseases by File Year

File Year	Mesothelioma	Lung Cancer	Other Cancer	Asbestosis	Pleural
1987	1.6%	2.8%	2.2%	84.4%	9.1%
1988	1.6%	3.3%	0.6%	72.1%	22.4%
1989	2.3%	4.3%	1.7%	74.7%	17.0%
1990	1.2%	3.3%	1.0%	84.9%	9.6%
1991	1.4%	6.6%	2.0%	83.7%	6.4%
1992	0.7%	2.5%	1.4%	94.3%	1.1%
1993	1.3%	4.0%	1.5%	89.2%	4.0%
1994	1.2%	6.4%	0.7%	82.3%	9.4%
1995	1.2%	2.6%	0.9%	95.1%	0.2%
1996	1.5%	4.0%	1.6%	92.8%	0.1%
1997	0.9%	3.1%	1.0%	94.9%	0.1%
1998	0.6%	2.9%	1.2%	94.1%	1.1%
1999	0.1%	1.2%	0.7%	95.1%	2.8%
2000	0.8%	1.3%	0.3%	95.1%	2.6%
2001	3.9%	3.9%	3.9%	88.2%	0.0%

Source: NCI T&N Claims Database.

Exhibit 8 is a second disease transition matrix that shows the disease distribution of the closed claims with known defense disease and no recorded plaintiff disease by claimants' death year. This matrix was required to redistribute the compensable pending claims with unknown disease for the use in the calculation of the compensability rates that I use to estimate future claims.[31] As is discussed above, the malignant incidences are death counts in the year of death, thus compensability for future claims must be referenced in the death year.

[31] Compensable pending claims are those where the estimated dismissal rates, discussed below and which vary by disease, are applied to the historical pending claims.

Exhibit 8: Transition Matrix For Unknown Diseases by Death Year

Death Year	Mesothelioma	Lung Cancer	Other Cancer	Asbestosis	Pleural
1987	10.7%	19.0%	5.4%	52.9%	12.0%
1988	11.7%	23.6%	2.8%	47.2%	14.7%
1989	11.0%	18.6%	4.1%	48.5%	17.7%
1990	6.4%	15.8%	4.7%	47.2%	25.9%
1991	1.8%	4.0%	1.0%	68.1%	25.1%
1992	1.4%	4.9%	1.1%	79.4%	13.1%
1993	1.9%	6.4%	1.7%	76.6%	13.4%
1994	0.9%	4.5%	2.2%	85.4%	7.1%
1995	0.7%	2.9%	2.7%	90.3%	3.4%
1996	0.2%	0.8%	0.5%	96.8%	1.6%
1997	0.5%	1.7%	0.4%	94.1%	3.2%
1998	0.7%	2.9%	1.2%	94.7%	0.4%
1999	0.3%	2.2%	0.7%	96.4%	0.4%
2000	0.3%	3.7%	1.3%	94.4%	0.3%
2001	0.1%	0.8%	0.9%	96.9%	1.3%

Source: NCI T&N Claims Database.

3. Average Settlement Amounts

To estimate average settlement amounts by disease, I examined the number of settled and paid claims and the total indemnity costs by the expense year. Exhibit 9 shows the claim counts by expense year.

Exhibit 9: Number of Paid Claims by Disease

Settlement Year	Mesothelioma	Lung Cancer	Other Cancer	Asbestosis	Pleural	Unknown
1987	574	707	177	4,584	530	3
1988	445	615	155	4,327	908	0
1989	562	1,166	220	9,084	3,714	7
1990	837	1,465	337	11,043	5,472	3
1991	560	803	174	5,320	2,282	0
1992	324	575	177	4,382	3,280	0
1993	405	794	235	8,408	1,994	0
1994	607	1,127	348	11,815	1,543	0
1995	480	755	271	9,600	516	0
1996	297	441	112	7,201	99	0
1997	282	521	178	7,686	63	1
1998	695	954	213	8,766	15	0
1999	802	1,025	347	15,550	7	3
2000	938	1,499	582	29,763	153	1
2001	356	590	266	29,351	17	9
1998-2001	2,791	4,068	1,408	83,430	192	13

Source: NCI T&N Claims Database.

Average settlement amounts are estimated by disease and by expense year for closed claims in the 1987 to 2001 period. Exhibit 10 shows that with the exception of mesothelioma, there is essentially no evidence that claim values escalated in the more recent years before the Federal-Mogul filing for bankruptcy. In fact, for this data, a decline in some average values is observed in the last four years. The relatively higher mesothelioma value in 2001 as compared to previous years might be a result of the average being computed over a smaller base.

Moreover, the data shows that there is a much thinner database in 2001 for compensated mesothelioma claims, making inferences based on these claims more questionable than other years.

Exhibit 10: Estimated Average Settlement Amount by Disease

Settlement Year	Mesothelioma	Lung Cancer	Other Cancer	Asbestosis	Pleural	Unknown
1987	$1,399	$1,008	$606	$530	$994	$51
1988	2,464	1,224	868	558	575	.
1989	11,773	4,754	2,225	1,783	1,295	1,160
1990	8,623	4,305	2,412	1,593	774	964
1991	19,614	7,736	3,367	2,152	1,234	.
1992	25,622	9,969	6,525	3,403	1,473	.
1993	31,042	12,534	6,235	3,883	1,997	.
1994	30,393	11,971	6,221	3,832	2,378	.
1995	36,857	14,134	7,255	3,343	2,049	.
1996	35,987	13,926	6,010	3,234	1,982	.
1997	41,332	12,908	6,659	3,134	2,056	657
1998	43,520	13,231	5,440	2,924	1,405	.
1999	60,570	11,683	6,439	3,513	2,043	9,323
2000	82,027	13,758	6,074	3,086	803	5,309
2001	102,361	13,065	3,937	1,526	1,021	2,925
1998-2001	$68,866	$13,011	$5,664	$2,600	$915	$4,585

Sources: NCI T&N Claims Database and U.S. Department of Labor Bureau of Labor Statistics, Consumer Price Index (All Urban Consumers, CPI-U), November 17, 2004.
Note: Settlement amounts are adjusted to 2001 dollars using the Consumer Price Index.

It is also instructive to examine T&N's claim values after the CCR disbanded and when it settled claims against it on its own, rather than with the purported benefits of CCR membership. Exhibit 11 displays the mean claim values by disease for the last six months prior to T&N's bankruptcy after the disbanding of the CCR in February 2001 and the mean claim values for the same months in the prior year when the CCR still functioned. As the data demonstrate, while on its own T&N experienced only a slight increase in mesothelioma claim values, a slight decrease in lung cancer values, and substantial decreases in claim values for other cancer and asbestosis claims (the number of pleural claims settled in 2001 is too small to make its claim average reliable). Thus, the historical claims data provide little or no basis for presuming that, had it not filed for bankruptcy, T&N would have faced substantial and widespread increasing claim values in the future. Indeed, based on the claim values, T&N's overall asbestos claims liabilities decreased after the CCR disbanded.

Exhibit 11: Mean Claim Values and Numbers of Claims by Disease

	April-September 2000		April-September 2001	
Disease	Mean Claim Value	Claim Count	Mean Claim Value	Claim Count
Mesothelioma	$79,004	495	$83,051	213
Lung cancer	12,535	801	12,379	338
Other cancer	5,720	347	3,468	144
Asbestosis	2,739	14,606	1,266	21,355
Pleural	592	136	1,104	7

Source: NCI T&N Claims Database.
Note: All dollar figures are adjusted to 2001 dollars using the Consumer Price Index.

D. Pending Claims

Exhibit 12 shows the distribution of pending claims across disease categories. The table indicates that a high percentage of pending claims have an unknown disease (about 18%) before the disease transition matrix is applied.

Exhibit 12: Disease Distribution of Pending Claims

Mesothelioma	Lung Cancer	Other Cancer	Asbestosis	Pleural	Unknown	Total
2,101	2,929	995	77,998	4,354	19,863	**108,240**

Source: NCI T&N Claims Database.

For illustrative purposes, I used the transition matrix (Exhibit 7) from the closed claims where the defense disease was known, but the plaintiff disease was unknown, to redistribute the unknown disease claims that were pending. Exhibit 13 shows the new distribution of the pending claims by disease category after application of the transition matrix, but before application of disease-specific dismissal rates which yields the number of claims for the pending liability.

Exhibit 13: Disease Distribution of Pending Claims After Addressing Unknown Disease Claims

Mesothelioma	Lung Cancer	Other Cancer	Asbestosis	Pleural
2,478	3,496	1,365	96,245	4,657

Source: NCI T&N Claims Database.

E. Future Claims

Future compensable claims are estimated by considering an exposed population, dose-response relationships, and the compensability rates that convert future injuries to compensable claims.

1. Potentially Exposed Populations

a) Population Estimates

I estimated the number of individuals exposed to T&N's asbestos products by starting with the eleven industries and occupations identified by Nicholson, et al.[32] and then analyzed the extent to which T&N's products would have been used in each of the eleven industries. The labor force exposure for this estimate is from the use of Limpet, which was distributed and installed in locations throughout the U.S. My analysis of the role of each of the Nicholson industries was based in part upon the list of locations and facilities where Limpet was installed.[33]

b) Industries and Occupations

Limpet is a spray-on asbestos insulation that was initially developed for insulating steam pipes for steam locomotives, and was used in several industrial applications. Exposure to this product would have occurred in eight of the Nicholson categories:

- *Construction:* While there were numerous asbestos-related materials used in industrial and non-single family residential construction, the use of asbestos-containing insulation products resulted in widespread direct and indirect exposure according to Nicholson, including workers in occupations not directly involved in

[32] Nicholson, William J., Perkel, George, and Selikoff, Irving J., "Occupational Exposure to Asbestos: Population at Risk and Projected Mortality – 1980-2030," *American Journal of Industrial Medicine* 3:259-311 (1982).

[33] See the Federal-Mogul bankruptcy website for a detailed listing: http://www.fmoclaims.com/us/php3.

the insulation process. None of the construction exposures estimated by Nicholson during the time period in question were excluded from this analysis.

- *Shipbuilding:* In addition to the use of asbestos insulating cements, spray-on asbestos insulation was commonly used to insulate the holds of ships as early as World War II. While this insulation activity might logically be expected to occur at the end of the shipbuilding activity, according to Nicholson, intermittent or indirect exposure was widespread among a variety of occupations, making it difficult to ascertain the particular source of any given exposure. None of the shipbuilding exposures estimated by Nicholson are excluded from this analysis.

- *Utilities (electric, gas, and combination utility services):* There are many facilities with work areas that have elevated temperatures which have been insulated with asbestos-containing materials. Operation and maintenance activities working with and around these materials, particularly given their propensity to crack and flake, would likely create direct and indirect exposure. Nicholson included one-quarter of the "physical workers" employed in these utilities – 10 percent representing maintenance workers and 15 percent representing other persons in the area who are indirectly exposed.

- *Insulators:* This occupation would clearly be exposed to asbestos in spray-on insulation products such as Limpet. The product was used to insulate steam pipes, boilers and other industrial machinery with elevated temperatures. This product was also used for insulation purposes in a variety of industrial construction and marine settings. Nicholson estimated exposures for this occupation separate from each of these categories in order to better assess their unique risk.

- *Marine engineers:* Flaking and cracking of asbestos insulating materials covering machinery casings, steam and hot water piping, and tanks was a common source of exposure for this occupation. Nicholson estimated that all engine room personnel on seagoing vessels would have this exposure.

- *Chemical and petroleum maintenance employees:* The manufacture and refining of chemical and petroleum products involves extensive use of networks of pipes, boilers and other high temperature equipment typically insulated with asbestos materials. Nicholson included all maintenance workers in the chemicals and allied products and petroleum refining and coal products industries in his estimate of asbestos exposures.

- *Steam locomotive repair:* Limpet was originally designed to insulate steam pipes and machinery in steam locomotives. Nicholson included all employees of railroad repair back shops in his estimate of asbestos exposures. Note that his estimate of new exposures in this industry decline to zero in 1960 as steam locomotives were phased out of use.

- *Stationary engineers, stationary firemen, and power station operators:* Operation and maintenance of stationary engines and mechanical equipment to provide utilities for buildings and industrial processes involve the same types of exposure to asbestos-related materials as described under utility services.

c) Time frame

Limpet production for sale in the U.S. began in 1934 and was discontinued in March 1973.[34] Known locations and dates for the use of Limpet in various locations in the U.S. extend from 1936 through 1969.[35] Exposure estimates include labor force entrants in the above listed industries and occupations from 1935 through 1973; even though there apparently are no known locations for Limpet used during 1970-73, the Disclosure Statement intimates that it was being produced for sale and use in the U.S. during this time.[36]

Construction and insulator exposures during construction maintenance and rehabilitation activities are included in the Nicholson construction and insulator exposure estimates. However, given that some exposures in the rehabilitation and maintenance of existing structures may have resulted from products previously installed, additional estimates of these exposures were added to this analysis.[37] These exposures begin in 1974 and continue (at a declining rate) until 2000, the last year of first exposure reported in the Federal-Mogul claims data.

The Nicholson study estimated the number of new entrants in exposed occupations by ten-year cohorts.[38] I used a similar methodology to estimate the cohorts in five-year increments. Exhibit 14 shows the aggregate estimated number of new entrants by five-year cohort from the industries described above who might have been exposed to T&N products over time.

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[34] Disclosure Statement at 32-33.
[35] Disclosure Statement at 32-33.
[36] Disclosure Statement at 32.
[37] For the years 1974-2004, exposures for building rehabilitation and maintenance have been estimated for nonresidential construction workers and insulation workers by NCI. These exposure estimates maintain Nicholson's industry definitions and new entry assumptions, and use historical Gross Domestic Product by industry tables maintained by the U.S. Department of Commerce, Bureau of Economic Analysis' web site (www.bea.gov) to allocate nonresidential rehabilitation and maintenance employment from the U.S Department of Labor's Bureau of Labor Statistic's historical Current Employment Survey (www.bls.gov). Construction output and nonresidential construction output were calculated for each year and divided into Nonresidential Building R&M to calculate shares, and appropriate adjustments were made to account for overlap between nonresidential and residential construction (see: U.S. Department of Commerce, Bureau of the Census, *1967 Census of Construction Industries*, Special Report 26, pp. 26-31 and 26-32) and new vs. rehab construction (see: U.S. Department of Commerce, Bureau of the Census, *1967 Census of Construction Industries*, Special Report 1B, p. 1B-13). Exposures for building rehabilitation and maintenance were then reduced by a compound annual rate of 15% per year (roughly the rate of rehabilitation and maintenance activity per dollar of total construction activity) beginning in 1980, reflecting the decline in use of asbestos materials in new construction (see BEA data cited earlier).
[38] Nicholson, Table XII at 283.

Exhibit 14: Estimated Population of New Entrants of Exposed Workers

Cohort	Number of Workers
1935	1,270,620
1940	6,010,800
1945	2,575,820
1950	1,554,760
1955	1,485,040
1960	1,617,960
1965	1,643,220
1970	1,369,758
1975	195,152
1980	169,569
1985	95,121
1990	41,872
1995	21,480
2000	2,866

Sources: Nicholson et al (1982), U.S. Department of Commerce, Bureau of Economic Analysis, and U.S. Department of Labor's Bureau of Labor Statistics.

d) Temporal Distribution of the Living Population

To estimate the living population over time, first, at my direction, NCI staff annualized the five-year cohort data by industry and then distributed the new entrants by age and duration of employment by industry.[39] Second, NCI staff converted the age-distributed new entrant cohorts into a living population over time by using the mortality data compiled by the Social

[39] New entrants for 1935-1973 are those estimated by Nicholson Table XII at 283 excluding those in auto maintenance, primary and secondary asbestos manufacturing. Note that the data have been smoothed and annualized by industry.

Security Administration[40] and excess occupational mesothelioma deaths per year as estimated using the formula published by OSHA.[41]

I used the aggregate annual living population potentially exposed to asbestos products relevant to T&N as the basis for my estimate of the mesothelioma injuries discussed below.

2. Incidence of Asbestos Related Disease

According to standard sources on the subject,[42] mesothelioma is a rare cancer of the thin lining surrounding the chest (the pleura) and the abdomen (the peritoneum). It is virtually always fatal, usually within a year or two of diagnosis. Asbestos exposure is the only definitively known cause of mesothelioma, although between 10 and 30 percent of mesotheliomas are idiopathic, occurring in individuals with no known exposure to asbestos.[43] Exposure to asbestos can cause lung cancer, particularly among workers who smoke.

Several other cancers have been attributed to asbestos exposure, although there has been dispute over medical causation. The most commonly claimed "other cancers" include stomach, colorectal, esophageal, laryngeal, and pharyngeal.

Asbestosis is a form of fibrosis, a nonmalignant scarring of the lungs and their surrounding membrane resulting from a reaction to the presence of fibers or dust. Asbestosis is a chronic disease that can result in shortness of breath, and in the most serious cases, disability and death. However, it can also be asymptomatic or only mildly impairing.

Pleural plaques is a scarring of the pleura, the lining that covers the inside of the chest and the outside of the lung. People exposed to asbestos may have plaques with no diminished pulmonary function or other clinical symptoms.

a) Mesothelioma Incidence

To estimate and project the number of mesothelioma deaths, a mesothelioma incidence formula was applied to the population of exposed workers living in each year. The mesothelioma incidence formula used is based upon an OSHA document from November 1983.[44] The mesothelioma formula used is not the same formula used in the 1982 original

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[40] Period Life Tables in 2004 OASDI Trustees Report dated March 23, 2004.

[41] 1983 OSHA regulations**.** The excess mesothelioma deaths also rely upon the employment duration for the new entrants in each industry and subsequently the fiber exposure for each of the age-distributed populations. These relationships are embedded in the NCI proprietary model for estimating mesothelioma deaths from occupational exposure.

[42] See, for example, Stephen Carroll et al., *Asbestos Litigation Costs and Compensation: An Interim Report*, - Rand Institute for Civil Justice (2002), along with the other sources cited.

[43] Frederick C. Dunbar et al., Estimating Future Claims: Case Studies from Mass Tort and Product Liability (1996) ("Dunbar") at 103.

[44] 1986 OSHA regulations.

Nicholson publication.[45] The 1982 Nicholson estimate, published a year before the OSHA document, produces a higher estimate of incidence. The incidence produced by the formula is the number of deaths from mesothelioma in any given year.

b) Lung Cancer and Other Cancer Incidence

To estimate and project the number of lung cancer and other cancer incidence, I used the KPMG epidemiological projections prepared for the National Gypsum Bankruptcy. The KPMG model for projecting the incidence of asbestos-related malignancies is based on the Nicholson model but contains several modifications made by KPMG's Policy Economics Group. KPMG has reported it discussed these modifications in consultation with Dr. Nicholson as well as other medical experts and epidemiologists.[46] I note in this regard that Dr. Peterson has also relied upon the KPMG model on other occasions.[47] Again, the incidence indicated by the table data is for death counts from the diseases.

3. Summary of Annual Malignant Injuries by Death Year for Projected Future Claims

Exhibit 15 shows the malignant injuries (death counts) by death year. In subsequent steps of my analysis, I use this information to estimate the counts of compensated malignant claims by death year. In the section to follow, I explain how the ratio of compensated non-malignant claims to malignant claims from the closed claim data is used to estimate the count of future non-malignant claims.

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[45] William J. Nicholson, George Perkel and Irving Selikoff, "Occupational Exposure to Asbestos: Population at Risk and Projected Mortality -- 1980-2030," American Journal of Industrial Medicine 3:259-311, 1982.

[46] KPMG Peat Marwick Policy Economics Group, Estimation of Company Liability Personal Injury, Vol. I. at 4, 54-55.

[47] See, for examples, Feb. 2004 Peterson Memorandum at 10, and Mark A. Peterson, Report for the National Gypsum Trust on Number of Projected Future Asbestos Personal Injury Claims, September 5, 1997 at 1. Dr. Peterson stated in the latter report, "we use modifications of the Nicholson study by KPMG-Peat Marwick…These modifications use more recent estimates of the labor populations…and better population estimates of the ages of workers exposed to asbestos. Dr. Nicholson and others have recognized the need for these modifications…"

Exhibit 15: Injuries by Death Year

Year	Mesothelioma	Lung Cancer	Other Cancer	Year	Mesothelioma	Lung Cancer	Other Cancer	Year	Mesothelioma	Lung Cancer	Other Cancer
1980	1,303	4,897	1,333	2005	1,699	3,638	990	2030	335	497	136
1981	1,367	5,042	1,371	2006	1,645	3,474	945	2031	300	431	117
1982	1,432	5,158	1,403	2007	1,589	3,311	900	2032	266	373	101
1983	1,495	5,261	1,432	2008	1,530	3,149	857	2033	235	346	87
1984	1,555	5,338	1,452	2009	1,469	2,989	813	2034	206	271	74
1985	1,611	5,401	1,469	2010	1,406	2,831	769	2035	180	228	62
1986	1,664	5,431	1,478	2011	1,343	2,674	728	2036	156	190	51
1987	1,713	5,441	1,480	2012	1,279	2,520	686	2037	134	157	42
1988	1,759	5,441	1,480	2013	1,216	2,371	644	2038	114	127	35
1989	1,798	5,433	1,478	2014	1,153	2,224	604	2039	97	102	28
1990	1,836	5,410	1,472	2015	1,091	2,083	566	2040	82	81	22
1991	1,868	5,362	1,458	2016	1,030	1,942	528	2041	68	63	17
1992	1,897	5,293	1,440	2017	970	1,808	492	2042	56	49	13
1993	1,920	5,218	1,420	2018	912	1,677	457	2043	46	38	10
1994	1,934	5,135	1,397	2019	855	1,553	422	2044	38	28	8
1995	1,943	5,037	1,370	2020	799	1,434	390	2045	31	21	6
1996	1,945	4,928	1,341	2021	745	1,317	358	2046	25	16	4
1997	1,941	4,807	1,307	2022	693	1,206	328	2047	20	11	3
1998	1,932	4,682	1,273	2023	642	1,101	300	2048	16	8	2
1999	1,916	4,550	1,238	2024	593	998	272	2049	13	6	2
2000	1,893	4,414	1,201	2025	545	902	245	2050	10	4	1
2001	1,866	4,265	1,159	2026	499	811	221	2051	8	3	1
2002	1,832	4,110	1,117	2027	455	724	197	2052	6	2	0
2003	1,792	3,955	1,076	2028	413	643	175	2053	5	1	0
2004	1,748	3,798	1,033	2029	373	567	154	2054	4	1	0

Sources: KPMG projections and NCI incidence model output. KPMG projections come from the expert report of Mark Peterson in the Owens Corning bankruptcy, supra note 26 at B-2.

Note: Projections past 2039 were generated by the average rate of change over the last four years of each projection.

4. Non-Malignant Claims

a) Asbestosis

No estimate of incidence is made for asbestosis. Following the method used in the Feb. 2004 Peterson Memorandum and elsewhere, I used information from the NCI T&N Claims Database to relate asbestosis claims to malignant claims.[48] My method is based on the ratio of compensable nonmalignant claims to compensable malignant claims. To estimate the ratio, I used the weighted average ratio for the period 1998-2001, which was 12.9 to 1.[49] I did not escalate this rate for the future claims in the base case calculations.

[48] Dunbar at 121.

[49] From 1998 through 2001 filing years, there were 56,176 compensated asbestosis claims. During the same period, there were 4,484 compensated malignant claims.

In my opinion, there are a number of reasons for assuming that the number of compensable asbestosis claims, and their ratio to compensable malignant claims, will decline in future years. First, increasingly strict federal regulation has greatly reduced the level of occupational exposure to asbestos over the past three decades. This process began in May 1971 with an OSHA permissible exposure limit ("PEL") of 12 fibers per cubic centimeter (f/cc) averaged over an eight-hour workday.[50] This was followed with PEL of 5 fibers/cc averaged over an 8-hour workday in December 1971,[51] and progressively lowered in subsequent regulations to a current standard of 0.1 fibers/cc.[52]

Epidemiologists have stated that the development of asbestosis requires a higher level of exposure than workers will experience under these standards; hence, as we get further out from 1971, the number of asbestosis cases can logically be expected to decline. For example, a study of asbestos-exposed workers published in 1991 stated that "a review of those epidemiologic studies for which historic air sampling was available indicates that the induction of clinical asbestosis requires a very substantial exposure, probably in excess of 25 fibers/ml-yr."— far higher than the exposure permitted under federal standards since 1971—and that, "[b]etter informed workers, decreasing use of asbestos, and stricter control of dust exposure in many trades have greatly reduced the potential for developing asbestosis."[53] Similarly, Churg and Green have noted that, "progressive lowering of standards for permitted occupational exposure to asbestos has markedly decreased the incidence and severity of asbestosis."[54]

Another reason to expect a decline in asbestosis claims for T&N in particular is the fact that most of its claims experience occurred within the CCR. In that context, the efficient and non-adversarial nature of settlements may have made it economically advantageous for plaintiffs' firms to include in their CCR filings more questionable asbestosis claims than they might have pursued under a pure tort system.

There is also evidence consistent with the conclusion that filings, of which non-malignant claims are a very high percentage, have decreased for particular companies in the last couple of years,[55] and generally at the national level. Data from the Manville trust, for example,

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[50] 36 Fed. Reg. 10466 (1971)

[51] 36 Fed. Reg. 23207 (1971). This was an Emergency Temporary Standard; final regulations were issued on June 7, 1972, setting a permanent standard of 5f/cc over an 8-hour time-weighted average ("TWA"), to be lowered to 2f/cc after four years, 37 Fed. Reg. 11318. The 2f/cc standard took effect on July 1, 1976. On June 20, 1986, OSHA published final regulations establishing a PEL of 0.2f/cc for 8-hour TWA. 51 Fed. Reg. 22612. This regulatory history and the citations within are taken from the Preamble to the 1994 regulations, 59 Fed. Reg. 40964 (1994).

[52] 59 Fed. Reg. 40964 (1994)

[53] Edward A. Gaensler et al., Idiopathic Pulmonary Fibrosis in Asbestos Exposed Workers, 144 Am. Rev. Resp. Dis. 689, 695 (1991).

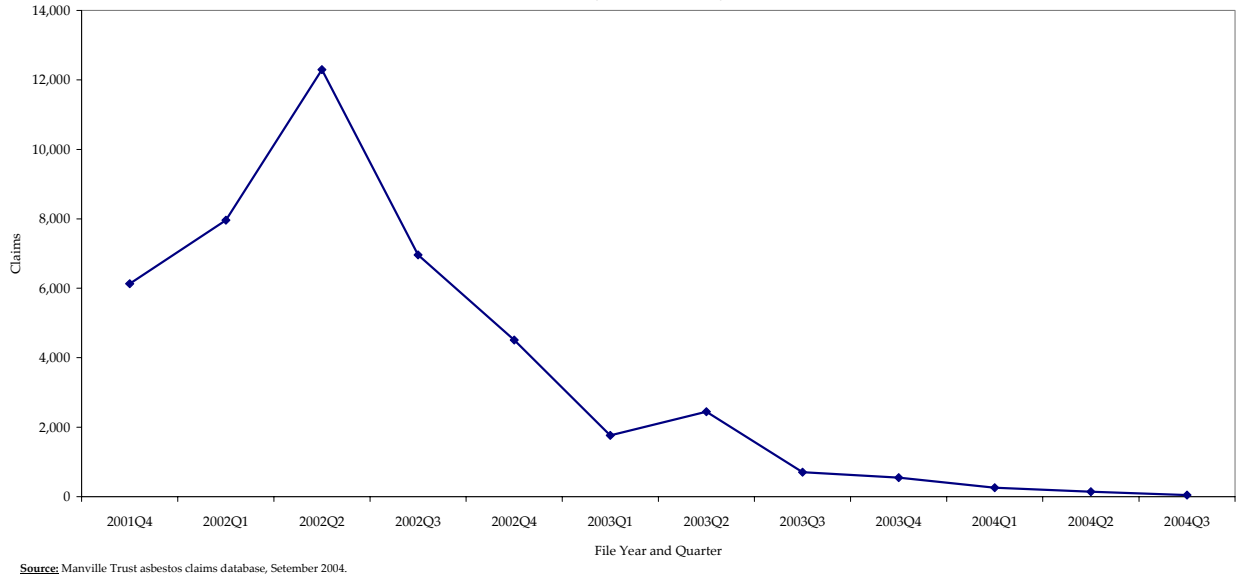
[54] Andrew Churg and Francis H. Y. Green, Neoplastic Asbestos-Induced Disease, in Pathology of Occupational Lung Disease (2 ed. 1998) at 339.

[55] See, for examples, the 2004 10Ks for the following companies that show the number of claims filed decreased from 2002 through 2004; American Standard Companies, Crane Co., Crown Cork and Seal, Georgia-Pacific Corp., and Goodyear Tire & Rubber Co..

illustrates a dramatic reduction in non-malignant claim filings since the second quarter of 2002 as shown in Exhibit 16.

Exhibit 16: Manville Claims Filings Experience

(2001Q4 - 2004Q3)



Source: Manville Trust asbestos claims database, September 2004.

(1) Pleural Plaques

Pleural plaque claims are a small percentage of overall claims, and I used the same methods to estimate the number of compensated claims as in the case of asbestosis claims. The ratio of compensable pleural claims to compensable malignant claims is 0.2 to 1.[56]

F. Claim Value Analysis

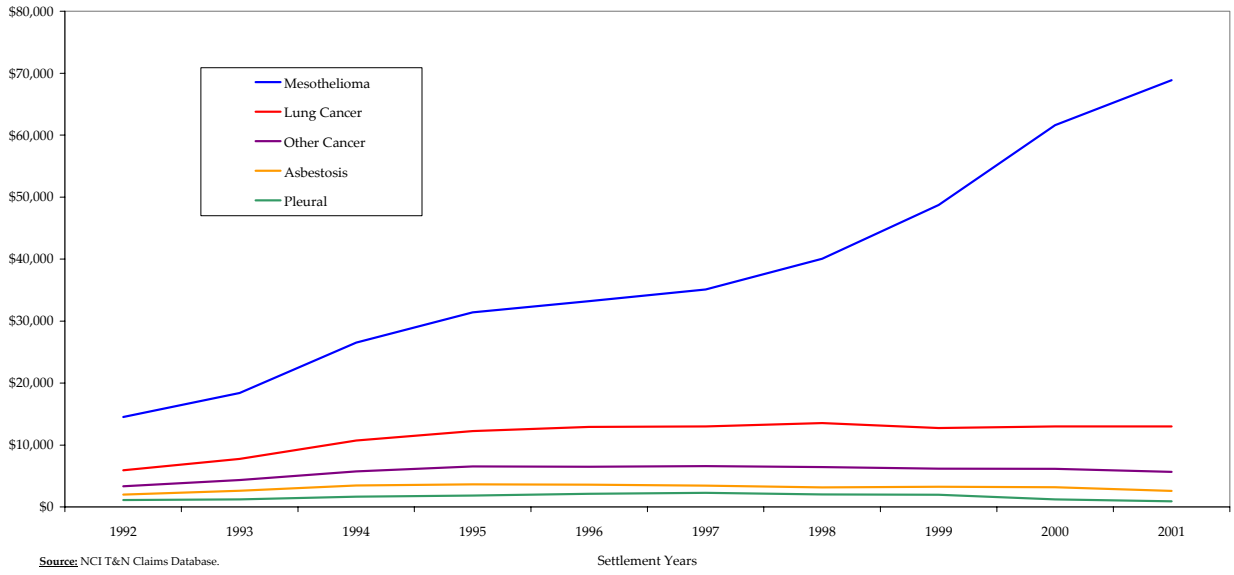
1. Estimated Average Settlement Values

I estimated claim values for pending and future compensable claims from the weighted average settlement values from 1998 to 2001. A rolling four-year average analysis indicates that these settlement values have been stable for all diseases except mesothelioma, as shown in Exhibit 17.

[56] From 1998 through 2001 filing years, there were 759 compensated pleural claims. During the same period, there were 4,484 compensated malignant claims.

Exhibit 17: T&N Rolling Average Settlement Values

($2001)



Source: NCI T&N Claims Database.

I note that there are a number of recent actions at the state level that are likely to affect both the number and settlement values of pending and future claims and thus be a source of further stability or reduction in the values. Attachment D summarizes examples of these recent state actions. In Texas, for example, the new law should reduce the amounts paid by individual defendants by limiting joint and several liability, and by allowing liability to be apportioned to third parties such as the government even if they cannot be sued. The new law may also bring down the size of verdicts by making it harder to obtain punitive damages.

My analysis of the distribution of pending and closed T&N claims shows that there are some important shifts of the distribution of the claims across and within states. Notably, the proportion of pending claims in Texas (about 20%) is relatively greater than the corresponding proportion for closed claims (about 12%) as shown in Exhibit 18. Pending claims, rather than closed claims, indicate the near-term tort experience for T&N had it not gone bankrupt in 2001. To the extent that a substantial proportion of pending claims are filed in states like Texas, which are actively considering asbestos tort reform, it is reasonable to expect that the environment in which claims are filed and settled will become more rigorous for plaintiffs.

Exhibit 18: Comparison of Closed and Pending Claim Distribution by State

State	Pending Claims	Closed Claims	Percent Pending Claims	Percent Closed Claims
Unknown	23,742	64,953	21.93%	23.57%
Texas	21,491	31,961	19.85%	11.60%
New York	11,518	8,042	10.64%	2.92%
Ohio	11,092	25,908	10.25%	9.40%
Maryland	6,916	5,697	6.39%	2.07%
West Virginia	6,564	24,579	6.06%	8.92%
Mississippi	6,246	28,252	5.77%	10.25%
All Other States	20,671	86,158	19.11%	31.27%
Total	**108,240**	**275,550**	**100.00%**	**100.00%**

Source: NCI T&N Claims Database.

The rolling average data does indicate that mesothelioma values have been escalating over recent years. I therefore assumed in my base case that the settlement value for these claims will escalate at 18.3% per year for 5 years (2002-2006) and then stabilize.

Exhibit 19 shows the estimated settlement values by disease by period incorporating the assumption about the escalation in the mesothelioma values.

Exhibit 19: Settlement Values by Disease and by Period

Expense Year	Mesothelioma	Lung Cancer	Other Cancer	Asbestosis	Pleural
1987	$1,399	$1,008	$606	$530	$994
1988	2,464	1,224	868	558	575
1989	11,773	4,754	2,225	1,783	1,295
1990	8,623	4,305	2,412	1,593	774
1991	19,614	7,736	3,367	2,152	1,234
1992	25,622	9,969	6,525	3,403	1,473
1993	31,042	12,534	6,235	3,883	1,997
1994	30,393	11,971	6,221	3,832	2,378
1995	36,857	14,134	7,255	3,343	2,049
1996	35,987	13,926	6,010	3,234	1,982
1997	41,332	12,908	6,659	3,134	2,056
1998	43,520	13,231	5,440	2,924	1,405
1999	60,570	11,683	6,439	3,513	2,043
2000	82,027	13,758	6,074	3,086	803
2001	102,361	13,065	3,937	1,526	1,021
1998 - 2001	68,866	13,011	5,664	2,600	915
2002	81,502	13,011	5,664	2,600	915
2003	96,456	13,011	5,664	2,600	915
2004	114,153	13,011	5,664	2,600	915
2005	135,098	13,011	5,664	2,600	915
2006	159,886	13,011	5,664	2,600	915
2007 - 2054	159,886	13,011	5,664	2,600	915

Source: NCI T&N Claims Database.
Note: Settlement amounts are adjusted to 2001 dollars using the Consumer Price Index.

2. The Potential Influence of Punitive Damages

My analysis of average settlement values makes no adjustments for the influence of punitive damages. As a matter of economics, it can be expected that injured parties will consider the costs and benefits of litigation before a law suit is filed. Specifically, the injured party must decide if the potential benefits of the law suit (the expected value of a positive outcome)

outweigh the potential costs of a law suit (attorneys fees, time, etc.).[57] This general economic model applies even under a contingency fee arrangement. Increasing punitive awards for plaintiffs will increase expectations about award size, and even with no change in the expected probability of winning the suit, will increase the expected value of the claim. Moreover, punitive damages raise the expected value of meritorious claims as evaluated by plaintiffs and defendants. Analysts have recognized this impact, and therefore have studied trends and magnitudes of punitive awards in various areas of civil litigation.[58]

Specifically for asbestos litigation, analysts have investigated the impact that punitive damages have on settlement values. In discussing a sizeable mesothelioma verdict with $15 million in punitive damages, the Rand Institute for Civil Justice says, "Even though very large awards may be reduced…they reverberate through settlement negotiations…"[59] Other recent studies support this view. For example, researcher Michelle White has conducted an analysis of settlement values and punitive damages and found that, "…when defendants are involved in more trials or pay higher damage awards, their settlement costs rise… This is particularly true of defendants that pay punitive damage awards."[60]

In my liability estimation approach, I do not make any adjustments for the influence of punitive damage awards on T&N's average settlement values. I have, however, conducted an analysis of the relationship between T&N's average settlement values and punitive awards per claim over time. Using data on punitive awards in asbestos litigation, I have estimated the correlation between punitive awards and settlement values for T&N.[61] Exhibit 20 shows that the long term trend in average punitive awards is positively correlated with the long term trend of average settlement values for T&N.[62] The correlation between the two series is 0.83 and is statistically significant.[63] Importantly, the results are consistent with the economic model of award expectations that I discussed above. Applying that model would indicate that my liability estimate likely overstates T&N's asbestos liability if the Court decides that the influence of punitive damages should be removed from the average settlement values.

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[57] See, for example, R*egulation Magazine*, "Private Antitrust Enforcement: Compensation, Deterrence, or Extortion." Volume 13, Number 3, Fall 1990.

[58] See, for example, CMIC Position Paper on Need for Tort Reform in Medical Malpractice Cases, February 2003, http://www.cmic.biz/legislative/legislative.stm

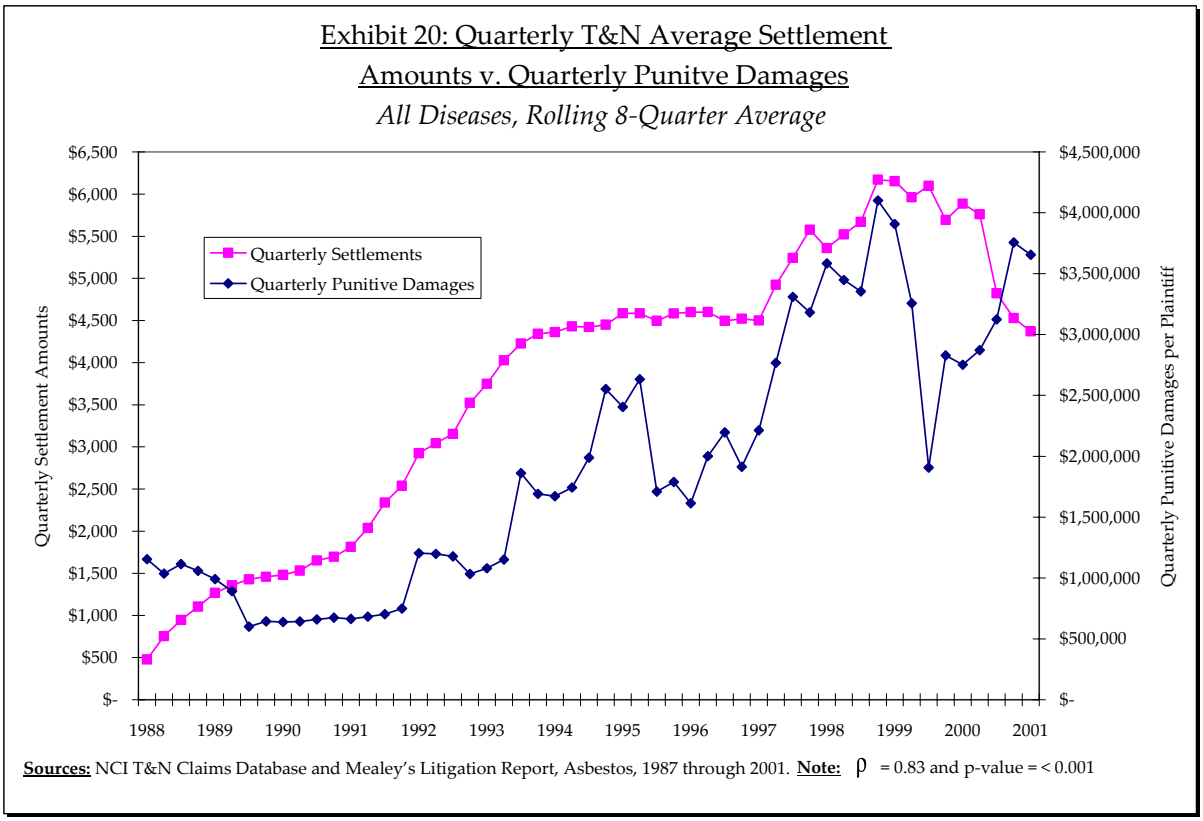
[59] See, for example, RAND Institute for Civil Justice, Documented Briefing – Asbestos Litigation Costs and Compensation, and Interim Report, http://www.rand.org/publications/DB/DB397/DB397.prf.

[60] White, Michelle, "Asbestos Litigation: Procedural Innovations and Forum-Shopping" February 2005, NBER Working paper.

[61] NCI obtained data on all 639 punitive damage awards between 1987 and 2001 as reported in the Mealey's Litigation Report for the purpose of this analysis.

[62] Long term trending is measured here as a moving eight-quarter average. I also tested the correlation between the quarterly average T&N settlement value and the long term trend in average punitive awards and also found a positive and significant relationship. Finally, I tested the relationships using constant 2001 dollars (to remove any potential influence of inflation on the trends), and again found a positive and statistically significant relationship.

[63] A correlation of 1 means perfect correlation, a correlation of 0 means no correlation, and a correlation of negative 1 means perfect inverse correlation.



3. *Projected Dismissal Rates*

Dismissal rates measure the number of dismissed claims relative to all closed claims in any particular file year. Exhibit 21 shows the calculated dismissal rates by disease and file year. A weighted average dismissal rate over the 1998-2001 period is calculated for each disease. I use these disease-specific rates to calculate the number of pending claims to be compensated for the pending liability estimate and also to estimate the number of compensable pending claims in each death year as discussed below.

Exhibit 21: Dismissal Rates by Disease by File Year

File Year	Mesothelioma	Lung Cancer	Other Cancer	Asbestosis	Pleural	Unknown
1987	5.3%	4.3%	12.2%	8.2%	9.0%	91.8%
1988	3.5%	4.1%	15.3%	5.3%	5.3%	97.3%
1989	4.8%	9.8%	21.7%	16.5%	5.8%	98.4%
1990	3.1%	3.7%	9.2%	3.7%	2.2%	91.4%
1991	7.7%	5.0%	8.3%	1.9%	10.0%	83.2%
1992	1.9%	8.2%	15.0%	2.3%	14.3%	74.5%
1993	4.2%	12.9%	24.6%	13.8%	27.6%	80.7%
1994	13.4%	8.4%	19.2%	13.5%	12.1%	26.9%
1995	6.6%	5.0%	5.3%	5.6%	26.6%	3.6%
1996	5.9%	5.4%	9.3%	11.7%	4.1%	16.3%
1997	3.3%	2.0%	3.3%	2.2%	2.8%	12.8%
1998	6.9%	5.8%	5.7%	5.4%	2.2%	32.1%
1999	6.4%	8.3%	6.2%	6.1%	3.5%	28.0%
2000	20.7%	12.9%	8.0%	3.9%	4.7%	85.1%
2001	6.9%	2.6%	2.9%	0.5%	1.5%	0.5%
1998-2001	**90.2%**	**92.4%**	**94.0%**	**95.5%**	**97.1%**	**62.2%**

Source: NCI T&N Claims Database.

4. Propensity to be Compensated

In my approach, the propensity to be compensated is the mechanism that converts future malignant disease incidence to an estimate of future compensable malignant claims against T&N. Once the estimates of future compensable malignant disease counts are obtained, future non-malignant compensable claims are estimated from the ratios discussed above.

The propensity to be compensated for each malignant disease category is calculated as the sum of compensated closed claims and the estimate of compensable pending claims divided by the incidence of disease mortality.

Compensable pending claims are determined by applying the disease specific dismissal rate to pending claims which have been referenced in a death year. As noted above, a disease specific dismissal rate estimated by the weighted average rate over the 1998-2001 period is applied to the pending claims in each death year to estimate the number of compensable

pending claims in that death year. Exhibit 22 shows the distribution of the compensable pending claims across the malignant diseases by death year.

Exhibit 22: Disease Distribution of Compensable Pending Claims by Death Year

Death Year	Mesothelioma	Lung Cancer	Other Cancer	Total
1987	4	6	2	12
1988	8	7	4	19
1989	20	14	6	40
1990	12	19	6	37
1991	19	19	12	50
1992	12	37	25	73
1993	25	51	19	95
1994	31	71	20	121
1995	76	104	32	213
1996	55	137	38	230
1997	73	173	54	301
1998	152	308	80	540
1999	245	364	127	736
2000	386	391	68	846
2001	437	262	83	782
Total	1,556	1,963	576	**4,095**

Source: NCI T&N Claims Database.

The other component of the numerator to calculate the compensability rates is compensated closed malignant claims by death year. That data is shown in Exhibit 23. Data from Exhibit 22 and 23 is summed and then divided by data from Exhibit 15 to derive each of the disease specific compensability rates.[64]

[64] Note that the claim data reflects a partial year in 2001, whereas the incidence data is for full years. As a result, I reduced the incidence count by 25% in 2001 to annualize that year's contribution to the compensability ratio. However, to the extent that pending claims in 2001 were filed sooner in the year

Exhibit 23: Disease Distribution of Compensated Closed Claims by Death Year

Death Year	Mesothelioma	Lung Cancer	Other Cancer	Total
1987	562	1,066	164	1,792
1988	532	938	194	1,665
1989	522	894	224	1,641
1990	490	797	215	1,503
1991	501	748	228	1,477
1992	513	828	210	1,551
1993	479	816	206	1,502
1994	476	837	237	1,550
1995	464	789	312	1,566
1996	453	714	243	1,410
1997	418	706	200	1,325
1998	471	652	277	1,400
1999	424	612	187	1,222
2000	343	430	211	984
2001	170	281	270	722
Total	6,821	11,109	3,378	**21,308**

Source: NCI T&N Claims Database.

Exhibit 24 shows the weighted average compensability rates over the 1998-2001 period by disease. These rates were used to estimate the number future malignant claims that I project would be compensated by T&N by death year. Estimated future malignant claims by death years were redistributed to file years by using the median lag of two combined groups: (1) claim data when both the file year and the claimant death year were known and (2) closed claim data where the file year and the expense year were known. This redistribution is necessary to calculate the net present value of the future claim liability as I treat future

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than later (perhaps because of the impending bankruptcy or the closing of the CCR), my adjustment for the partial year will overestimate the true compensability rate. I further investigated the issue of truncated data because of the bankruptcy filing by examining the calculated compensability rates in the most recent calibration window that in my approach was unlikely to be affected by truncation (1996-1999). I found that the compensability rates in this window for each malignant disease were all less than the rates I used in the base case.

claims as compensated in their file year. In addition, the estimation of the future non-malignant claims is calculated as a ratio of the malignant claims by file year. As a result, all future malignant claims were "backed up" from the death year into a file year by subtracting the median lag for a particular disease from the death year. For example, if the median lag between filing and death (or expense year if death year is missing) for mesothelioma claims is less than 2 calendar years but more than 1 calendar year (so a lag of 1), then the future compensated mesothelioma claims that will *file* in 2001 are determined by the product of the estimated compensability rate for mesothelioma and the number of mesothelioma *deaths* in 2002 (i.e., 2001 plus 1).

Exhibit 24: Compensability Rates by Disease

Mesothelioma	Lung Cancer	Other Cancer
36.9%	19.5%	28.4%

Source: NCI T&N Claims Database.

VI. Summary of the NCI Liability Estimates

A. Base Case Results

1. Discounted NPV

To estimate the base case results, pending claims (including SBNP and SBND) are all compensated in 2001, and future claims are compensated in their estimated file year. The values for future claims are escalated by the assumed inflation rate (discussed below) and then discounted by a risk-free rate of interest.

2. Inflation and Discount Rates

The underlying inflation assumption used for all future claims is 2.2%. This is based on the U.S. Congressional Budget Office's estimated long term inflation rate in the Consumer Price Index, a standard benchmark for such estimates of general price change.

T&N's projected asbestos liabilities occur over a long time period. A discount factor is used to reflect the time value of money to calculate the present value of liabilities that occur at different points in time. For ease of comparison with the forecast in the Peterson November 2004 Report, I use a risk-free 5.5% rate based on 30-year Treasury bond estimates published annually by the U.S. Office of Management and Budget for the discount rate in the

calculation. Economic theory, however, would support use of a larger discount rate to reflect the risk of the future cash flows anticipated by claimants at the time they were injured, resulting in a lower estimate of net present value.

3. Results

Exhibit 25 summarizes the compensable pending claims by disease.

Exhibit 25: Compensable Pending Claims by Disease

Mesothelioma	Lung Cancer	Other Cancer	Asbestosis	Pleural	Total
2,130	3,060	1,166	85,878	4,415	**96,650**

Source: NCI T&N Claims Database.

Exhibit 26 summarizes the compensable future claims by disease and by year.

Exhibit 26: Compensable Future Claims by Disease by Year

File Year	Mesothelioma	Lung Cancer	Other Cancer	Abestosis	Pleural	Total
2001	169	193	73	5,619	74	6,129
2002	662	742	281	21,734	287	23,706
2003	646	710	268	20,954	277	22,856
2004	627	678	256	20,142	266	21,970
2005	608	647	243	19,320	255	21,073
2006	587	615	231	18,482	244	20,159
2007	565	584	218	17,635	233	19,236
2008	542	553	207	16,796	222	18,320
2009	519	522	195	15,949	211	17,396
2010	496	492	183	15,105	200	16,476
2011	472	463	172	14,281	189	15,576
2012	449	434	161	13,469	178	14,691
2013	426	407	150	12,675	167	13,825
2014	403	379	140	11,893	157	12,972
2015	380	353	130	11,137	147	12,147
2016	358	327	120	10,394	137	11,337
2017	337	303	111	9,686	128	10,565
2018	316	280	102	8,998	119	9,814
2019	295	257	93	8,329	110	9,084
2020	275	236	85	7,689	102	8,387
2021	256	215	77	7,072	93	7,714
2022	237	195	70	6,471	86	7,058
2023	219	176	63	5,906	78	6,442
2024	201	158	56	5,362	71	5,849
2025	184	141	50	4,844	64	5,284
2026	168	126	44	4,354	58	4,749
2027	153	111	39	3,896	51	4,249
2028	138	97	33	3,459	46	3,773
2029	124	84	29	3,054	40	3,331
2030	111	73	25	2,686	35	2,930
2031	98	68	21	2,411	32	2,630
2032	87	53	18	2,030	27	2,214
2033	76	45	14	1,744	23	1,903
2034	66	37	12	1,490	20	1,625
2035	58	31	10	1,266	17	1,381
2036	49	25	8	1,061	14	1,157
2037	42	20	6	883	12	963
2038	36	16	5	729	10	795
2039	30	12	4	597	8	652
2040	25	10	3	486	6	530
2041	21	7	2	392	5	427
2042	17	6	2	314	4	342
2043	14	4	1	250	3	272
2044	11	3	1	197	3	215
2045	9	2	1	155	2	169
2046	7	2	0	121	2	132
2047	6	1	0	94	1	103
2048	5	1	0	73	1	80
2049	4	1	0	56	1	62
2050	3	0	0	44	1	47
2051	2	0	0	34	0	37
2052	2	0	0	26	0	29
2053	1	0	0	21	0	23
2054	1	0	0	21	0	23
Total	11,597	10,895	4,010	341,887	4,518	**372,907**

Source: NCI T&N Claims Database.

Using the settlement values by disease, applying them to the appropriate periods, and following the calculation rules discussed above, Exhibit 27 shows the results for the base case net present value in 2001 dollars.

Exhibit 27: Liability Calculations by Compensated Class

Compensated Group	Discounted NPV
SBND and SBNP	$139.9
Pending	420.5
Future Claims	1,924.7
Total	**$2,485.0**

Source: NCI T&N Claims Database.
Notes: (1) Values are in millions of dollars.
(2) Values in the Discounted NPV framework are discounted to 2001.

B. Sensitivity Analysis

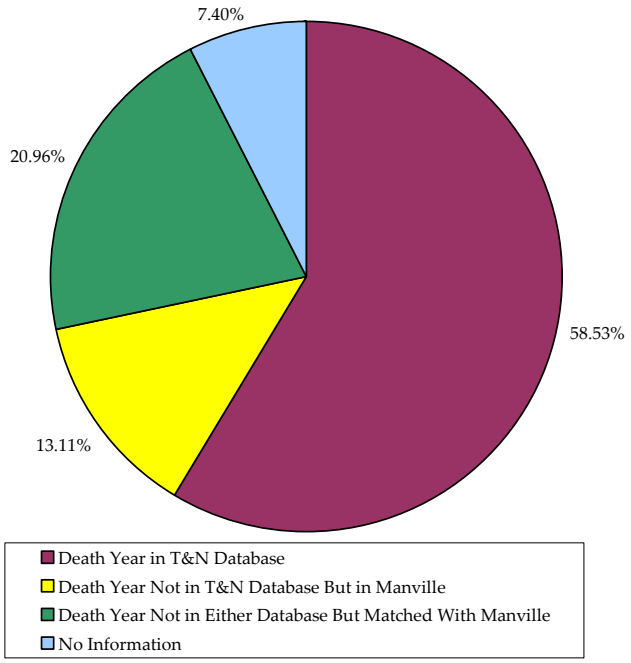
1. Using File Year As The Proxy for Missing Death Year

My approach imputes a death year for claim records where this information is missing. Death year is estimated as file year plus the median lag that I estimate for each malignant disease as explained above. Notably, only malignant claims are used to calculate the compensability rates that are applied to disease incidence to estimate the number of future malignant claims. The record-level claims used for the calculation of compensability rates are the closed compensated claims and the pending claims. There were 33, 946 records in these two relevant groups which I used in my compensability analysis.

In the T&N Claims Database, a substantial portion of these relevant claims (about 59%) had a recorded death year as shown in Exhibit 28. I was also able to match records to the Manville data which provided a recorded death year for another 13%. For nearly 21% of the relevant data, there was a match of the record to the Manville data; however, no death year was recorded in the Manville data (and no death year was recorded in the T&N data). It is my understanding that Manville data is routinely updated for current information on claimants; thus, I inferred that if no death year was recorded in Manville, it was likely that the claimant had not yet died. Thus, for only 7% of the relevant data, there was no additional information to make an inference about death year.

Exhibit 28: Availability of Death Year Information on T&N Compensated Closed Claims and Pending Claims

(Malignant Diseases)

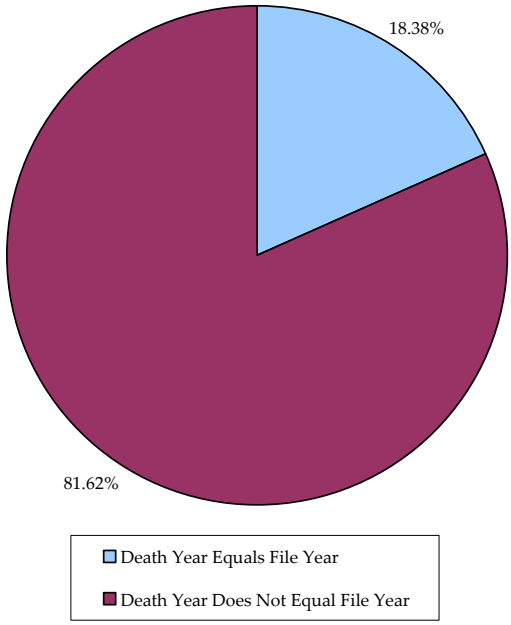


Source: NCI T&N Claims Database.

The relevant data can also be used to investigate the likelihood that the recorded file year and death year are the same. Exhibit 29 shows that file year equals death year for only 18% of the records. Otherwise, either death year is missing or it is not equal to file year.

Exhibit 29: Likelihood That Death Year Equals File Year for T&N Compensated Closed Claims and Pending Claims

(Malignant Diseases)



Source: NCI T&N Claims Database.

My base case uses expense year as a proxy for the records with missing death years, then estimates a median lag by disease which is used to move the record to a death year. If death year is available on the record, no imputation is required. Thus, the expense year assumption affects only about 28% of the records.

While the data indicate that it is much more likely that file year is not the same as death year, I also investigated a sensitivity case where I use, but do not endorse, the assumption that they are the same when death year is missing. Exhibit 30 shows that this assumption increases the net present value of the liability estimate to $2.8 billion.

Exhibit 30: Liability Calculations by Compensated Class With File Year Proxy for Death Year

Compensated Group	Discounted NPV
SBND and SBNP	$139.9
Pending	420.5
Future Claims	2,278.0
Total	**$2,838.4**

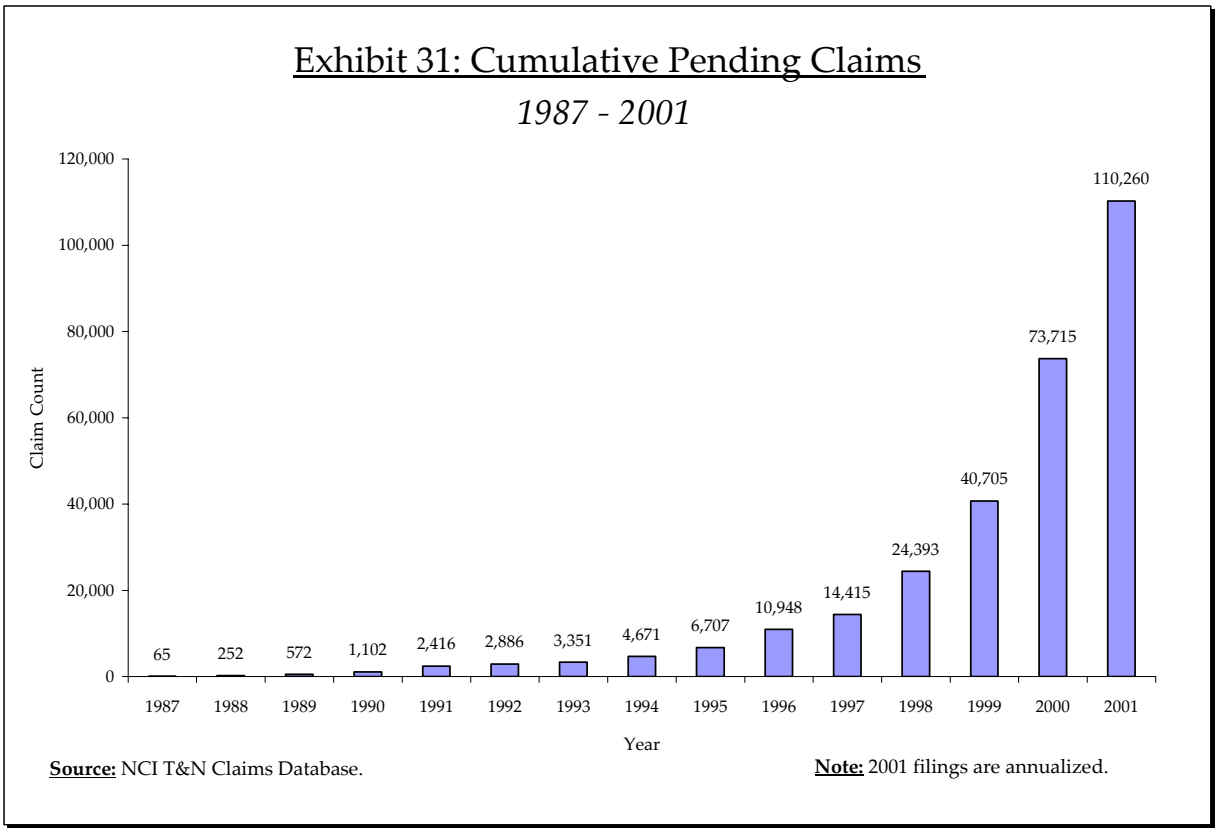
Source: NCI T&N Claims Database.

Notes: (1) Values are in millions of dollars.

(2) Values in the Discounted NPV framework are discounted to 2001.

2. No Growth in Average Settlement Values for Mesothelioma

My base case assumes that the average settlement value for future mesothelioma claims will escalate at 18.3% per year for 5 years and then stabilize. As discussed above and in Attachment D, there are actual and proposed changes in state law that may have resulted in an increasingly difficult environment for plaintiffs if T&N had continued to settle claims in the tort system. Moreover, by 2001, T&N had accumulated more than 100,000 pending claims. Exhibit 31 shows that the level of pending claims was growing dramatically after 1998. Thus, in the absence of bankruptcy, there would have been growing pressure on T&N to reduce the indemnity costs of these claims.



To explore how the state law changes and a more aggressive T&N defense strategy might affect the liability estimate, I removed the escalation assumption for mesothelioma settlement values from the base case. The estimation present value of liability decreases to $1.9 billion as shown in Exhibit 32.

Exhibit 32: Liability Calculations by Compensated Class - No Growth In Average Mesothelioma Settlement Value

Compensated Group	Discounted NPV
SBND and SBNP	$139.9
Pending	420.5
Future Claims	1,325.8
Total	**$1,886.1**

Source: NCI T&N Claims Database.
Notes: (1) Values are in millions of dollars.
(2) Values in the Discounted NPV framework are discounted to 2001.

3. Liability Due to Fiber Brokerage

In addition to the preliminary estimate of potential asbestos exposures attributable to Limpet, an alternative estimate of the injuries was prepared as a sensitivity analysis. The estimate incorporates potential exposures to asbestos fibers sold or distributed by the following entities: Keasbey, Bell, and TAF. As noted above, these T&N subsidiaries engaged in the sale and/or distribution of asbestos fibers spanning a time period of 1934 to 1976.

While it is unclear whether T&N can be said to be legally liable for any or all of these asbestos fiber transactions, an alternative estimate that incorporates potential exposure to these products would add three additional years of exposure to the industries identified above (1974-1976) and would also add three additional asbestos-related industries and occupations as estimated by Nicholson et al.:

- *Auto mechanics*: Auto mechanics encountered asbestos in gaskets and friction products, as well as under-coatings, fire-proofing, and sound-deadening materials.

- *Primary asbestos manufacturing*: This industry is engaged in the production of friction products, asbestos-cement pipe and sheet, textiles, floor tiles, roofing felts, insulating materials, and other asbestos building materials. Also included in these industries is the production of gaskets, packing and sealing devices, and building paper and building board mills. Nicholson included all production and maintenance workers in these industries in his estimates of asbestos exposure.

- *Secondary asbestos manufacturing*: Nicholson included portions of production and maintenance workers from the fabricated plate and boiler shop industry, industrial process furnaces and ovens, electric housewares and fans, and a variety of other secondary industries producing friction products, reinforced plastics, products containing asbestos paper, laboratory equipment, electrical switchboards, cooling towers, and other fire protection materials.

Exposure in these, and in the Limpet industries and occupations, would extend from 1934 through 1976 under this scenario, with construction rehabilitation and maintenance exposures continuing at a declining rate from 1977 until 2000.

Exhibit 33 shows the recalculated net present value. It is only marginally higher than the base case.

Exhibit 33: Liability Calculations by Compensated Class Using Alternative Estimate of The Injuries

Compensated Group	Discounted NPV
SBND and SBNP	$139.9
Pending	420.5
Future Claims	2,026.5
Total	**$2,586.9**

Source: NCI T&N Claims Database.
Notes: (1) Values are in millions of dollars.
(2) Values in the Discounted NPV framework are discounted to 2001.

4. Using KPMG Incidence Table for Mesothelioma Injuries

To investigate the influence of my approach (the NCI model) for the mesothelioma projections, I recalculated the results using the KPMG incidence tables for this disease. Exhibit 34 shows the results. Again, there is little effect on the base case values.

Exhibit 34: Liability Calculations by Compensated Class Using KPMG Mesothelioma Projections

Compensated Group	Discounted NPV
SBND and SBNP	$139.9
Pending	420.5
Future Claims	2,032.4
Total	**$2,592.7**

Source: NCI T&N Claims Database.
Notes: (1) Values are in millions of dollars.
(2) Values in the Discounted NPV framework are discounted to 2001.

Signature ___s/s Robin A. Cantor____
Robin A. Cantor

DATE _____April 26, 2005_____